SUPPLEMENT.

The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 1132.—Vol. XXVII.] LONDON, SATURDAY, MAY 2, 1857. [WITH JOURNAL.] STAMPED ....SIXPENCE. UNSTAMPED..FIVEPENCE.

ENGLISH AND GERMAN MINING.—No. I.

BY C. H. GUSTAVUS THOST.

Sir,—Having been for several years an attentive reader of your Journal, I should have taken notice of the unfavourable opinions expressed upon German mining—as to persons and things—more frequently than I have done had I not been desirous to avoid controversy, in which it is preferable that a foreigner should take no part. But as I now take up this subject with the best intentions, and in order to dispel mistakes and misconceptions, I may state that I have had every opportunity of forming an opinion, from being theoretically and practically brought up, and engaged in mining affairs for 12 years in Germany, and for the last eight years engaged in mining in this country; and I shall, therefore, frankly state what conclusions I have arrived at, hoping that any discussion arising from my assertions will have reference to subject, and not persons.

As Germany is a confederation of upwards of 30 states, I shall choose one for illustration—the kingdom of Saxony, which, too, I know best—there being, however, probably no material difference between them.

All mining establishments in Germany are directly or indirectly under the protection of governments. The hand and the will of the Government is seen throughout, and the more so as the mines and smelting works are, if not in the exclusive possession of the Government itself, at least, to a great extent under their controlling authority, the officials being either directly or indirectly in the employ of the Government. Mining, and all connected with it, are subject to this general principle:—Mining is a branch of national economy, and, therefore, no private individual must have free disposal of the underground wealth, in case that might become detrimental to the commonwealth. This sounds very anti-British, but very German-like, as in Germany almost everything may be considered in accordance with this principle; so that the directing will of the Government goes into every corner, reaching even the fireside, which is inspected, and its chimney swept by the officials. In a similar manner the spirit of such German constitutional legislature, if I may be allowed to use that phrase for a thing which does not in reality exist, penetrates, proportionably, the mining department. Do such laws bring forth any good at all?—Yes; for instance, they prevent people from making too large, and, therefore, dangerous, speculations in mining undertakings; and I believe that such wild schemes as witnessed in Great Britain—brightly arising, but falling to the ground in the course of a short time—are near about impossibilities in Germany. For instance, the gold mania underground and overground, in lodes or in chemical laboratories, in patents or in advertisements, cannot even commence; and Government being a guiding father, poor mines holding out prospects of becoming better or rich are encouraged to go on. But, on the other hand, for a vigorous exploration, a quick turning out of the head underground, capital must not be expected. The only true principle of free trade and freedom has there assumed a thoroughly ghostliness. Would not the British wonder if, for instance, a shoemaker were not allowed to commence shoemaking when he liked? Well, there he cannot, except on Government license and approval. Would the British tolerate this—to ask the censor's permission to have a card with one's name upon it? Well, I know the time when he had to ask this permission, and thus it is in mining. No mining company can employ this or that workman, more or less hands, without asking approval and authority. To put such a system in working order, mining is governed and constituted like an army, being field-marshalled, officered, and manned. The labouring miner, like the private soldier, is spoken to by *du* (thou), which word in German means either the most intimate relation between the persons so speaking, or signifies the degree of servitude between high and low; because the high one claims to addressed by the low one with *sie* (they). Can it be wondered that by such institutions each class has a peculiar mixture of natural and of artificial growth: We, therefore, find in Germany, and the miners are very characteristic for that, a submission and obedience, accompanied in many instances with agreeableness, faithfulness, amiable passiveness of character, and diligence, to an extent, which we do not meet with in England. But, on the other hand, we also trace the obvious marks of a slavish sense and behaviour.

It is in furtherance of the principle of mining, being a national economical thing, that the proprietor of the soil is deprived of underground wealth, so far as concerns the noble metals, unless he be the discoverer himself. The discoverer, or any other person, is protected and allowed to commence mining, even against the will of the proprietor of the surface. But a somewhat greater privilege is given to the proprietor in case of coal measures being below his surface, as he then has the preference. If he does not work the coal measure, some one else can lawfully do so, on paying a royalty to the proprietors. In accordance with the said principle, Government make, in metallic mines, the adit levels without direct contributions of money from the mines, claiming only a certain proportion of the ore raised, as royalty. There are even instances where Government advances money to the mining company for the erection of dressing-floors, machinery, &c., in an entirely disinterested manner, if the mine holds out good prospects. But it cannot be denied that these advances are of a very scanty and insufficient character; as too many poor miners call for that accommodation, which is of no risk whatever to them. Such principles, though to a certain extent beneficial and encouraging, are, in reality, almost impossibilities in working.

With respect to the underground workings, the strictest investigation is established to insure an approved plan being adopted. The stopes are kept in proportion to the opening and trying of new ground. The stopes must follow each other in the most regular order, according to unrecorded laws, which, in former times, were considered so well understood as to render it unnecessary to write them down. While such regulations seriously affect dividends, they are the fundamental cause of life of a mine. Many mining concerns, without those restrictive rules, would long since have been abandoned; and many others would not be in existence at all. This very important subject of mining legislature deserves to be commended to the serious consideration of all interested in mining.

While, then, German mining, in my conception, no doubt has too much of an artificial and official character, English mining is of purely natural growth. Each concern looks to itself, and to its own interests, not caring for its neighbour's benefit or disadvantage to unite for mutual welfare, which system then becomes selfish in its character. I think the mining interests would be much benefited if adjacent setts were bound by law, and some general regulations, to unite, to a certain degree, for the promotion of mutual interests, especially as regards ventilation, water drawing, and water supply. Indeed, in coal mines, never will a safe system of working be established unless the whole district, comprising one and the same coal measure, whatever its extent may be, joins, under one principal management, the above three points, and thoroughly opens the coal measure on the grandest possible scale. Each single concern would thus contribute to generally beneficial arrangements in proportion to its production, or to the average amount of the underground value of each. It is clear, I think, that such measures being laid down by virtue of mining legislature, both the large and the small mining property must, in the end, arrive at more beneficial results. I own that the small mining concern, by partaking of these large and all-encircling plans, would derive a greater share of benefit in proportion than the large concern; but as the latter loses nothing by it, but rather gains also, it appears right and fair, in a national point of view, to let the former enjoy it freely. One at any rate can suppose it to be possible that a small and less wealthy company may be driven to abandon altogether, or to be at least narrowed and confined within too small a compass to allow of good and safe working.

To carry out such principles, in the first instance a law of expropriation of a certain underground area, including the whole unknown depth, would become an imperative necessity. None need be afraid, for similar laws already exist for railways, which, like mining companies, benefit the whole nation. In reference to safe mining, as to the life and health of the miner, we all know that for other private undertakings the law thought it right to interfere. The conveyance of passengers on railways, in sailing vessels, and in steamers, and the medical practice are by law restricted. Indeed, the state has a duty to discharge where human life is at stake. A superintendence has been established, and the same should, in my opinion, be extended to every mining concern. The question is, how far this inspection ought to go. It should not go beyond certain limits, and it should by no means go so far as in Germany. I would guess at the middle of the amount of superintendence as exercised in British coal mines and in Germany. It is not, at present, my intention to enter into further details, as I only wish that more attention should be directed to mining legislature. But what I contend is, that a well-informed and well-educated miner should have charge of the mining affairs of the kingdom, under the Secretary of State, to be at the same time the chairman of a general mining board. That board, established by law, might do a great deal of good otherwise by their public reports, controlled by the free press of this land, to enlighten those interested as to the value and prospects of mines; so that fraudulent schemes, so often complained of, would be checked; this would promote individual and general good in every direction; and British mining would take a long step beyond the mining legislature of Germany, where the press is fettered.

[The conclusion of this communication, treating of the education of miners, will be inserted in our next Journal.]

GEOLOGY—PRIVATE LECTURES ON THE EARTH—No. V.

ON THE CHANGES THAT BRING TROPICAL REMAINS TO THE NORTHERN HEMISPHERE.

It has been already observed that the entire changes of the surface of the globe have taken place only in one direction—from south to north. Many theories of the probability of the globe having been originally in a state of igneous fluidity have been propounded; but this would involve the supposition of similar conditions in both hemispheres, besides necessitating the acceptance of other results, which are totally inconsistent with our experience of the laws of heat.

Indeed, it is difficult to conceive how any geologist who has studied nature as it is, and paid attention to the general economy of the mineral, the vegetable, and the animal kingdoms, with their respective laws of development, changes, and decay, could possibly uphold the igneous theory and its accompanying incongruities. Were the disciples of the igneous doctrine to make experiments, with a view of producing rich tropical vegetation in the cold climate of the North, by applying intense heat underneath, they would soon discover the absurdity of such a doctrine.

In a recent course of lectures, delivered by Professor Phillips at the Royal Institution, the "limits of variation in the state of the globe" was entered into, and considered in the following manner:—

"That this part of the globe was in former periods much hotter than at present is assumed from the tropical character of the fossil plants and animals that are found abundantly in all the series of rock formations. Palms, cycadeæ, corals, and tortoises were abundant at the time the secondary and tertiary strata were deposited. * * * Various ingenious modes of accounting for the change have been propounded. * * * Sir C. Lyell is of opinion that the difference of climate might be explained on the supposition that there was a much greater extent of dry land within the tropics, and a smaller quantity near the poles, the effect of which would be to increase considerably the temperature of all parts of the globe."

Prof. Phillips arrived at the conclusion "that such a change would not have been sufficient to account for the growth of tropical plants in northern latitudes." After noticing the various hypotheses accounting for variations in the state of the globe, the professor said, "that none of them satisfactorily explained the high temperature of the globe indicated by tropical vegetation in the northern hemisphere, and that we must look for a solution of the problem to the internal heat of the earth!" A very strange conclusion by such a geologist, who had remarked some years ago that the organic remains in the lower palæozoic rocks did not indicate a tropical climate, but rather that of Australia. There is no place on earth where luxuriant vegetation is produced in the open air by means of internal heat, but always by the heat of the sun's rays; therefore, there is not a single instance of any kind to justify such an assumption. No internal heat, in the absence of suitable external conditions, can produce gigantic plants, with their delicate appendicular organs; therefore, as the one accompanies the other—the vegetable and the animal—the same explanation is essential, and must be applied to both, to account for the phenomena of the change of climate.

We know, from ample experience in hot-houses, that internal heat, in the absence of light and of moist air, would be destructive to the glossy verdure of the vegetable kingdom, and much more so to the animal. The heat of the volcanoes of Iceland is of but little avail to vegetable life in that latitude.

In spite of these glaring facts, Prof. Phillips, in his lecture, made the following observations, which we shall consider as we proceed:—

"In proceeding to consider the causes of the high temperature of the globe in ancient geological periods, he (Prof. Phillips) attributed it chiefly to *internal heat*. In the first place, he considered that the figure of the earth shows that the mass was originally in a fluid or semifluid state, to enable it to assume an oblate spheroidal shape, by rotating on its axis."

This is a very vague and unsatisfactory assumption. The globe has been, and still is, in a semifluid state—*i.e*, a compound of minerals and *water*. It is the surface of the saline *ocean* (which occupies about three-fifths of the globe, including the inland seas and lakes) that gives it the spheroidal outline. This figure is formed and is preserved by means of the oceanic liquid during all geological changes; why, then, call in the aid of incandescent matter to account for the mere figure or outline of our watery sphere, which such an hypothesis proves so contrary, and requires conditions totally at variance to direct evidences?

"Secondly (says Prof. Phillips), the evidence of volcanoes which at long intervals have ejected masses of rocks, which are of the same quality in the same district, but are different in different districts."

This argument has no bearing whatever on the question. Volcanoes may be considered as mere chemical pimples, depending on local conditions. The aqueous variety are infinitely more numerous and constant in their actions than the inflammatory ones.

"In the next place (continues the professor), there is the direct evidence of the *internal heat* of the globe derived from the increase of temperature in descending from the surface."

Here again we join issue. The fact of the temperature being found to increase as we descend in deep mines at the rate of about one degree of Fahrenheit for every 60 ft. in depth in some of the mines of Europe, does not prove that it must increase downwards to a degree of incandescent fluidity. We have no right to draw such a conclusion. The ocean, near the surface, indicates a variable degree of temperature, within certain limits, until we descend to a certain depth, where the temperature is found to be constant.

Observations and mathematical calculations indicate also the same conditions above—viz., the variations in the temperature of the atmosphere are principally confined between the surface and the regions of perpetual snow, above which it is supposed to be of an invariable temperature. The same with animals and vegetables—the temperature does not necessarily increase continuously from the skin or the bark towards the centre, but simply near the outward parts, and remains stationary within, at the degree required to preserve the internal activity of semi-aqueous bodies. We know nothing of igneous bodies, excepting in the mere evanescent and artificial productions of our manufactories. There is no such thing in existence as a molten body in a quiescent state. Melted matter is a mere temporary production, and cannot remain stationary. All substances connected with our globe contain upwards of 50 per cent. of *water*, and, therefore, will not admit of fire, or igneous fluidity, as a permanent mixture.

ROCKS AND MINERAL DEPOSITS OF NAMAQUALAND—No. V.

Another singular feature observed with respect to the same rock (that gneissose schist) is, that when the meridional bands of other micaceous, talcose, &c., schistose rocks, are continual, and traceable along the ground on the bottom of valleys, as well as on the sides and on the crest of mountain ridges, such is not the case with this rock, for if we were to trace any particular band of that rock, commencing—say, on the top of such a mountain ridge, and following the course of that rock in its descent northwards, we should notice, in addition to the step-like disposition of its surface (which is to be ascribed, perhaps, to the east and west vertical and horizontal cleavages being distinctly exposed to view, wherever portions of the rock have been carried away by denudation), a gradual decrease or obliteration of its highly exfoliated structure, a gradual closing up, as it were, of many of its meridional cleavages, in proportion as we descend; and right on the bottom of the valley, in the bed of the dry river (wherever the rock is exposed to view, we find—although we are quite sure that we did carefully follow the run of that same rock—no trace of that exfoliated structure, and notice in its place bands of a hard, highly silicious rock, of a roundish, waterworn surface, running across the valley, and representing such an appearance of the surface that the term "dykes" has not inappropriately been applied to them. On examining the components of those "dykes," one is strongly tempted to take them to be a highly silicious granite, if their elongated structure did not assign them to the order of "gneiss;" they consist chiefly of quartz, traces of felspar, and very faint traces of talc (or mica, the flakes being so very minute that it is difficult to define which of the two they belong to), all being arranged in a granular, granite-like disposition, but with only very faint traces of talc (or mica), though talc is so conspicuous in the exfoliated rock on higher levels. They are roundish, dyke-like bands, or dykes, with occasionally exfoliating crusts on their surface, which (being generally not more than 2 to 5 inches in thickness) give a peculiar hollow sound when we walk over them, and underneath which, when breaking them off with a good hard blow of the hammer, we often discover various kinds of lizards, amongst which a beautiful steel blue and red variety is very conspicuous. The breadth of such "dykes" of rock differs, varying from 5 to 10 ft., and more; in the broader ones, however, there are often noticed thin fissures, occasionally filled with quartz, running parallel with the larger fissure, or, rather, furrow that is on either side of the band, thus indicating the meridional main cleavage fissures of the rock.

On closely examining those dykes, more especially the fissures, or rather furrows, which occur between each pair of such dykes (by digging through the shallow mass of sand with which these fissures are often filled), I found thin wedge-like bands of a light talcose rock, of a distinctly schistose structure, and with perfectly smooth and even laminæ, amounting in breadth to from 2 to 6 ft., and containing, in most cases, a thin vein of white quartz running all along its length. In the valley of N'Ormis, where I had occasion to stay for some time, I followed several such fissures upwards, ascending towards the mountain (and digging through the ground wherever they were covered by alluvial soil), and there I found those wedge-like bands either gradually decreasing in breadth when approaching towards the more exfoliated rock, and the vein of quartz increasing in breadth, or that band of talc gradually to change by imperceptible degrees of transition into such exfoliated rock (gneissose schist). With respect to these facts, I confine myself only to asking the question, Whether those peculiar bands of hard rock, which are noticed on the bottom of the valley, are the real original base rock of that schistose rock which is noticed on the mountains on either side, and which base rock has been exposed to view, owing, perhaps, to the said schistose rock having been removed in those spots (bottom of valley) by denudation—those thin wedges of talcose rock, in that case being, as it were, the roots, which were left behind; or whether both those rocks are the contemporaneous results of a metamorphosis of one common base rock, by which metamorphosis the one portion of the rock, which being situated on a higher and drier level, was less affected by the mechanical influence of water, and which was hence allowed to yield to the gradually-changing influence of terrestrial and atmospheric agencies, did develope itself to that highly exfoliated structure which it is noticed to possess now, and by which metamorphosis the same base rock, on a lower level, where most of the softer components were forcibly carried away by the mechanical agency of running water, was caused to assume its present roundish, water-worn, hard, because highly silicious, surface?

An experiment which was tried some time ago might tend to throw some light upon the subject. Take any fragment of rock, say of secondary formation (limestone, &c.), but of sufficient hardness, so that it could not be destroyed by the agency of water, and break it into three pieces, if possible all of equal size and shape, taking care to ascertain that one piece be exactly like the others in hardness, &c.; one piece wrap carefully up in paper, and preserve it in a dry place, the other piece place in the field, &c.—anywhere where it is fully exposed to the influence of all atmospheric agents, though not exposed to the mechanical influence of running water (saving rain), and the third piece lay in a running stream of water, taking

of course care that neither of the three pieces should be lost or exchanged for another by mistake. In taking up and examining those three pieces again, after the expiration of even no more than a year's time, we find, on comparing them with one another, a distinct and marked, though as yet, on superficial observation, not very striking, difference between them. When the one piece, which we had kept carefully wrapped up in paper, would show no traceable difference from its former state, the second piece would already present a different arrangement of its molecules—would, if tried, for example, with a knife, show a different density on its surface than in its centre; and if it should happen to be a grey felspathic rock, we should also discover traces of a felspathic incrustation (whitish looking), the deposition (if I may use such a quaint expression), on a small scale, of a stratum of younger rock having already commenced on its surface. The third piece, too, would show some change; its sharp angles and corners would already present a roundish, water-worn appearance, and, in addition to that, this third piece would be the hardest and densest of all—all showing that the change which has taken place with them is not a mere mechanical, but is also a chemical, change in their surface, and in the molecular arrangement of their components. I often noticed pebbles in rivers which could clearly be traced to the rock from whence they were derived, to be (so it appeared to me) much harder, and more difficult to break, than a piece that had been fresh broken off from the parent rock. The matter, I should think, is highly deserving the attention of all who could bring scientific knowledge to bear upon the question; and I cannot help fancying that a further investigation might reveal that a great many rocks, which, according to the theory and opinion of many geologists, are altogether distinct and different from one another, and which are even considered to have been created at quite different periods, and long intervals of time, are, after all, not so very alien to one another.

In addition to the above-mentioned rocks, there occur also bands of whitestone, one about 12 miles eastward from the Kodas Basin, one within that basin, one in the north and south valley of Kabous, one near Okesamma, and several other localities, all running in a meridional direction, parallel with the other bands of rocks. I omitted to mention, in my last paper, a peculiarity observed in the limestone of the Kabous Basin. This limestone is in some spots rather coarse grained, composed of small crystals and fragments of lime spar, each of somewhat less than a pea in size, and although it looks white in its fracture, the weather-worn surface has a dark gray colour and rough exterior, so that a fragment of it might, at a distance, be mistaken for granite. That rough surface, however, on closer examination, represents a number of small ripple-like furrows, which, although each particular furrow is often not straight, but of a serpentine-like shape, still all of them run in a general uniform direction, similar in their disposition to the dark oblong specks which are noticed in the wood of cigar-boxes. This limestone occurs to the east of Kabous Valley, where the ground is rising to the eastward towards a high, bulky mountain range. The dip of that limestone is westerly, but a most striking peculiarity I noticed on the top of a hill, no great distance to the south of the missionary station. Here the lower western portion of the rock had a western dip, the cleavage fissures being distinctly perceptible; but on the east side, above them, the cleavage fissures had a distinct eastern dip, the latter being closer to one another, giving to the rock the appearance of flagstones; and the eastern portion of the rock (that with an eastern dip) overlying the western portion, the cleavage fissures of the latter appearing as if they were cut off where in contact with the lowest cleavage fissure of the eastern portion; but these minute ripple-like furrows, or oblong cavities, had in both a uniform direction, that direction being, in the upper (east-dipping) as well as the lower (west-dipping) portion parallel with the dip of the latter. Respecting all those bands of limestone, it may be remarked that they appear to increase in bulk the further to the westward—that is, towards the lower level—they are situated; and further to the east I noticed, in their place, and near rocks of the same nature as surround the more western bands of limestone, often only thin strings and veins of lime-spar (carbonate of lime) occurring here and there in the rock.

JULIUS.

EMINENT MINERS.—No. II.

[Continued from the *Mining Journal* of April 18.]

Mr. COSSHAM went on to notice JAMES HANN, the celebrated mathematician. HANN used to work in the mines near Newcastle with GEORGE STEPHENSON, and while there studied mathematics with the greatest zeal and devotion; he often searched all the old book shops in Newcastle for mathematical works. When a boy, he made a globe of red clay, baked it, and covered it with paper, and then delineated the principal seas, continents, and islands of the world upon it. He rose, step by step, until he became professor of mathematics at King's College. He has written many useful books, among which are the following:—1. "Mechanics for Practical Men,"—2. "A Treatise on the Steam-Engine,"—3. "Analytical Geometry,"—4. "Plain and Spherical Trigonometry,"—5. Also several articles on "Mathematical Calculations," in Weale's educational and mining works. JAMES HANN died last year, leaving a name that will long be remembered, and works that entitle him to be considered as an "eminent miner."

Dr. HUTTON, also a mathematician, was born at Newcastle, Aug. 14, 1737. He was descended from a family in Westmoreland, connected by marriage with the celebrated Sir ISAAC NEWTON. His father was overman at a colliery near Newcastle, and CHARLES HUTTON (our hero) is said to have worked as a hewer at the old Long Colliery. At a very early period he showed great taste for mathematics. He received but little education, except what he acquired by his own diligence. At the age of 18 (about which time he lost his father) he became assistant teacher at a school in the village of Jesmond. The master of the school was a clergyman, and some time after having obtained a living, he gave up the school to HUTTON. In 1760, HUTTON married, and removed his school to Newcastle; here he was much encouraged, and here he had the honour of teaching Lord ELDON, who afterwards became Lord Chancellor. He wrote first—"A Practical Treatise on Arithmetic and Book-keeping;" in 1771, a "Treatise on Mensuration;" then a work "On the Principle of Bridges and the Mathematical Demonstration of the Laws of Arches, &c." In 1773, he received the appointment of Professor of mathematics at the Royal Military Academy, at Woolwich. In 1774, he was elected a Fellow of the Royal Society. In 1779, he received the degree of LL.D. from the University of Edinburgh. In 1781, he published his "Tables of the Power and Product of Numbers;" in 1785, his "Mathematical Tables;" and, in 1786, his "Tracts on Mathematical and Philosophical subjects." In 1795 appeared his "Mathematical and Philosophical Dictionary," in two large 4to. volumes. He then undertook, in connection with Drs. PEARSON and SHAW, the task of abridging the "Philosophical Transactions." This work was completed in 1809, in eighteen volumes 4to., and for this Herculean task he received 6000*l.* He died on January 27, 1823, at the age of 86 years, having left a name that fully entitles him to be considered as an "eminent miner."

LEITHART is not much known; all we know is, that he was a working miner in Derbyshire, and that he wrote a valuable treatise "On the Formation and Filling of Metallic Veins," in which he very ably discussed questions connected with the electrical origin of lodes. The only education he had received was at a Sunday-school.

INGELBY, "The King of the Conjurors," was a pitman; he was undoubtedly a clever and ingenious man; he most likely learnt the black art in the dark regions below; and it is rather remarkable that colliers and miners are generally fond of that which is mysterious and superstitious.

THOMAS BEWICK, the celebrated wood-engraver, was the son of a collier near Hexham, and worked in the pits all his early days, and though not much known, deserves to be noticed as an eminent miner.

HUGH MILLER, though not a collier, was a quarryman, and may, therefore, almost be regarded as a miner. He was a man of marvellous mind. His "Old Red Sandstone" is a wonderful book. His work on his early history and education, called "My Schools and Schoolmasters," ought to be read by every young man. His religious publications, and his last work "On the Testimony of the Rocks," all prove him to be a man of great learning, immense application, deep research, and eminent piety. His end was truly tragical and mysterious.

SAMUEL DARW worked when a boy in the Cornish Mines. He was one of the many noble characters that Methodism has developed and brought out. He was a most acute reasoner, and a very able preacher. He wrote many books on theology; one of the chief was a work on the "Immortality of the Soul," which for logical reasoning was never surpassed on this most abstruse and difficult subject.

WILLIAM HUNTINGDON was a collier, and chiefly celebrated as an Antinomian preacher of great power and ability. He published many works of a theological and controversial character, one of the chief of which was his "Bank of Faith." He experienced several reverses of fortune, and has been always held in great respect by the high Calvanists of this county.

WILLIAM LLEWELYN, a celebrated collier of Mangotsfield, Gloucestershire, who died Dec. 2, 1773, aged 86 years. He worked as a collier all his life, for the support of himself and family. He was passionately fond of the study of astronomy, and frequently spent whole nights in star-gazing and the study of the heavenly bodies. He saved 30*l.* in his youth, and spent the whole on books of science; he read the works of NEWTON, HALLEY, and other great writers; he made telescopes and microscopes of every kind, and could calculate eclipses to the greatest nicety; he made an almanack, and when he died left behind him a name that will be long remembered. Several of his descendants are now moving in highly respectable circles in this neighbourhood. The following poetry was written by a friend after his death:—

EPITAPH FOR WILLIAM LLEWELYN, THE LEARNED COLLIER OF MANGOTSFIELD.

Beneath this humble turf there lies
An honest collier, learned and wise.
His mind by love of knowledge fired,
To wisdom more than wealth aspired,
And thought it was a happy lot
To dwell with knowledge in a cot;
To latest life from early youth,
His search was philosophic truth,
And oft from nightly rest he stole
To seek the charmer of his soul.
In Nature's book, by Nature taught,
He learned to think as Newton thought,
And with an astronomic eye
Measured the rolling orbs on high;
He knew the courses, motions, reign,
Of all the planetary train,
And with precision just and clear
Marked out the order of the year.
To him were Nature's treasures known,
And Science made them all his own.
What though nor wealth nor honour'd birth
Distinguished him from men of earth?
What though no state nor lettered name
Enrolled him on the list of fame?
His soul aspired to nobler things,
And left the world to lords and kings,
Content to enjoy the better part,
A knowing head and honest heart.

Accept, oh sage! the tribute due
To worth so simply great as thine,
And let the learned with candour view
What friendship offers at this shrine.

This humble, though noble collier, deserves to be put in our portrait gallery of "eminent miners."

The following have been selected from a large number, as examples of piety and moral greatness among miners:—

"The Blind Miner of Botallack, in Cornwall." This worthy man became blind, but so averse was he to receive parish relief that he regularly worked in the mines for years, to support a large family; he learned to find his way to every part of the mine. Thus he laboured and toiled on under every disadvantage, until at last he met with an accident by a fall from a ladder, and was killed. This worthy miner has left a noble example of true independence; would that it were more common among pitmen.

"The Pious Collier, or the History of Joseph Round," published by the Religious Tract Society. Round was a poor Staffordshire collier, and a native of Dudley. He received the little education that he had at the Dudley Blue Coat School, and at 12 years old he went to work in the pit; he was then awfully profane, but when about 16 years of age he heard a sermon that completely altered his course. From this time he became eminently pious; his first efforts of usefulness began with his own parents and friends; he then became a most zealous tract distributor, laboured very earnestly in the Sabbath school, and became a local preacher among the colliers. He got a chapel cut out in the coal underground, in which the men used to assemble, and there Joseph preached to them during the dinner hour, nearly every day. He met with several accidents, and died at the age of 51, respected by all who knew him.

"The Two Colliers in the Hour of Danger," also published by the Tract Society. James and Joseph were sons of two very respectable working men; they lived in the same street, and attended the same Sunday school. They generally worked together as boys, and continued to do so as they grew up to manhood, and also after they were married. Joseph became truly pious, but James, though amiable, was not pious. After they had grown up and had families they still worked together. On one occasion they were sinking a "tip," and, of course, used gunpowder to blast the rock. They were preparing for a "shot," and had nearly all ready, when the fuse lighted. They both jumped into the bucket, but the man at the reel could not draw both up; Joseph at once jumped out, calling out to the reel man to go on, saying, "I am fit to die, James, but you are not." His companion was scarcely at the top when the shot went off, and on his return, fully expecting to find his companion killed, he found the rocks had fallen round him in almost a miraculous way, and that he was not hurt.

Mr. COSSHAM then went on to notice several other instances of remarkable bravery on the part of miners when their companions were exposed to dangers, and remarked that more real heroism was often displayed in a mine than on the battle-field.

The lecturer concluded by remarking that it was a great advantage that we lived in an age and country in which it was possible to rise from the lowest ranks of life to the highest positions in Church or State; and that what others had done, the students of the Bristol Mining School might do by the same diligence and application; and also showed, that while all might not be equally eminent, all might be distinguished for moral and intellectual worth, and thus prove the truth of what Pope has said—

"Honour and shame from no conditions rise—
Act well your parts, there all the honour lies."

ALUMINIUM.—We learn that the preparation of this metal, according to the system proposed by Dr. H. Rose, a celebrated German chemist, in 1855, has now become an important manufacture, and our informant remarks that this novel branch of industry, which owes its development entirely to France, is worthy of a position among the most interesting discoveries of modern times. This metal, which has hitherto been so extremely scarce, is said to have been made up into articles, the lightness of which astonishes those most difficult to be astonished. The impression produced becomes greater when it is considered that the cryolite (double fluoride of aluminium and sodium), which is used in the production of the metal by the new process, was imported into France, for the first time, in 1856; and that this mineral, which is one of the most beautiful bodies in point of purity and crystallisation which mineralogy affords, is found in considerable quantities on the coast of Greenland. It appears that the usine at Amfreville has succeeded, upon a commercial scale, in effecting that which Dr. Rose proved in the laboratory. No attempt has been made to realise his proposition without arriving at a satisfactory result; this has, no doubt, arisen from the difficulties which would have to be surmounted in the economic extraction of the metal from the Greenland mineral, having been minutely pointed out by Dr. Rose. The works have been pursued almost without interruption at Amfreville, and it is said that difficulties no longer exist. Notwithstanding the high price of sodium, aluminium is delivered from Amfreville at a price which will admit of its being applied in a great number of instances. The price of aluminium would, of course, be reduced in proportion as improvements are made which will reduce the cost of sodium, the manufacture of one being subservient to the other. Then the manufacture of sodium is no longer dependant upon circumstances requiring the study of chemists, but is an industry which time will more fully develope; and at Amfreville slow, but sure, progress is being made in perfecting the manufacture. Aluminium may be considered as intermediate between the common and precious metals; and to manufacture goods of this character it is that the usine alluded to has been established. By long practice, and regular and continued working, the manufacture becomes more and more thoroughly understood; and the promoters of the usine rely upon the same interest being felt upon the metal being introduced commercially as attended its first discovery. To make the character and the properties of aluminium fully understood, it may be added that its density is 2·56, or 4 times less than silver and 5½ times less than gold. It does not tarnish by exposure either to the air or to sulphurous vapours. It gives off no odour. Its chemical composition—salts, &c.—have no poisonous effects, which is a property not possessed by copper, tin, lead, zinc, silver, nor even gold. Its tenacity may be compared to silver; its malleability and ductility admit of its reduction to the thinnest sheets or finest wire. Alloyed with 5 per cent. by weight of silver, it acquires more whiteness, more elasticity, and a hardness which renders it susceptible of a finish polish. Its sonorousness surpasses that of any pure metal, and can only be compared to crystal. It can be gilt or plated by the employment of suitable baths. It is less beautiful than silver, but has the advantages over that metal of being lighter, and unalterable even in sulphurous vapours. Its fusing point is between those of zinc and silver, so that it can be melted and moulded in the ordinary manner. It is the best known conductor of electricity; and when it can be manufactured at a much lower price than at present, it will, no doubt, be extensively employed for electrical purposes. It is said to have been made into a variety of articles (including optical and astronomical instruments) with great success, but there are rumours afloat that the so-called aluminium articles were manufactured of Birmingham metal, coated with silver. There is, however, little doubt that if the new metal be produced below the price of silver, it will be employed for a vast number of articles for which silver, gold, and platinum are now used.

Meetings of Mining Companies.

GREAT WHEAL ALFRED MINING COMPANY.

A general meeting of shareholders was held at the offices of the company, Threadneedle-street, on April 25, Dr. BEATTIE in the chair.

Mr. FIELD, jun. (the secretary), read the notice convening the meeting, and the following report from Capts. M. W. Michell, Wm. Bugelhole, and Wm. Arthur:—

Since the last two monthly meeting the 180 has been driven 6½ fms. through a lode from 2 to 4 feet wide, producing stones of ore; from the dip of the ore in the level above this end is now within 3 fms. of it. Copper-house shaft is made complete to the 180. The 170 has been driven 7 fms. through good tribute ground—present end worth 8*l.* per fm. A cross-cut has been driven south 7 fms. behind the present end, and cut part of the south lode, which will produce about 2 tons of good ore per fm. The 160 has been driven on the flookan, or north part of the lode, 7¼ fms., 3 of which was worth from 15*l.* to 20*l.* per fm.; the south part is worth from 25*l.* to 30*l.* per fm. From the bearing of the two parts, that are approaching each other at the junction, good results may be expected. A rise has been communicated with the 148, which has well ventilated the two levels for working. No. 1 stopes are worth 50*l.* per fm., No. 2 stopes are worth 60*l.* per fm. The 160 east, on the south part of the lode, is worth 25*l.* per fm.; this lode from the present bearing is standing south of the former level. The 148 has been driven 6 fms., yielding on an average 1 ton of copper ore per fm. We have about 150 tons of copper ore at surface, but cannot make it ready for market for want of water. We hope to get the engine to work by this day week, when we shall soon make the same marketable.

The statement of accounts which was submitted showed:—

Balance last audit	£ 754	4	3	
Mine cost, Jan., and Feb.	2250	13	5	
Doctor and club	25	10	1	
Merchants' bills three months	1800	0	5	
Dues at 1-30	94	16	11	
Sundries	26	13	2	= £4951 18 3
Copper ore sold, March and April	2734	16	5	
Tin sold	110	12	9	= 2845 9 2
Leaving balance against mine				£2106 9 1

A SHAREHOLDER enquired whether they were to have no information relative to the accident about which so much had been said?

The CHAIRMAN said that, with reference to that accident, they had had but one letter, which was from Capt. Michell, on April 10, in this it was stated that both plates of Field's balance bobs had broken to pieces. They had received a letter from Mr. Field that morning (Saturday), and he would, therefore, call upon his son to read it. In this letter it was stated that they were making a wooden bob, which would not be liable to the accidents to which the cast-iron was. The water was then to the 111, and they would commence forking the mine in a week. By the present arrangement they would have two bobs to carry the weight of 70 tons instead of one. The water would not rise more than 10 fms. in the next week, and the loss would not exceed 1000*l.* or 1200*l.* He had as much faith as ever in the mine making profits, and he thought it advisable to make a call of 10s. per share. The Chairman observed that they had now heard Mr. Field's letter, and that he proposed a call of 10s. per share; but upon this himself and the committee entertained a different opinion, and considered that it would be far preferable to make it 1*l.* per share; half payable immediately, and the remainder in two months. It was believed that if this step be adopted it would put the mine in a good position. It would pay off all debts, and the cost to the end of May. At the end of May there would be a large sum in hand. Hitherto the merchants' bills had been one month in arrear of the cost sheets. Having thus explained their affairs, he believed the call was the only question remaining to be settled.

A SHAREHOLDER enquired what was the entire loss for the two months?

Mr. FIELD, jun.: The entire loss is 1852*l.* 4s. 10d., but there are three months' bills charged against two months' cost, so that the actual loss was 887*l.* 2s.

A SHAREHOLDER remarked that the directors had led them to believe that the profits would be ample to cover the deficiency; yet they now showed them a continued loss.

The CHAIRMAN then proposed a call of 1*l.*—10s. payable immediately, and 10s. in two months.—This resolution having been seconded,

Mr. BIRDSEY moved as an amendment that a call of 10s. be made payable forthwith. His reason for moving this amendment was, that 10s. would quite meet their present wants and all they required until they met again. This amendment was seconded, but lost on being put to the vote.

The call of 1*l.* was then agreed to *nem. con.*, and the meeting separated.

PENDEEN CONSOLS MINING COMPANY.

A general meeting of shareholders was held at the Auction Mart, Bartholomew-lane, on Thursday, Mr. R. GREENWOOD in the chair.

The CHAIRMAN read the notice convening the meeting, and a statement of accounts, from which the subjoined is condensed:—

Balance last audit	£239	2	4	
Mine cost, Dec.	124	11	3	
" Jan.	124	16	3½	
" Feb.	145	10	5	
" March	142	0	1	
" April	121	10	10	
Merchants' bills	289	18	8½	= £1187 9 11
Arrears received	199	19	6	
Calls received	552	18	9	
Materials sold	0	2	6	= 753 0 0
Balance against adventurers				£434 9 11

A report was read from Capt. Evans, dated April 17, who, after describing the state of the working, was of opinion that with perseverance Pendeen would make a good copper mine. The report of Capt. Wm. Eddy was next read, as follows:—

"Our sump-shaft is now sunk 3 fms. below the 70, by nine men; the lode is about 2 ft. wide, but very much shortened up at this time. There is an alteration now taking place on the lode, either for the better or for the worse; in the next 6 feet we shall be able to see and give you better information on it. In the end, going south, the lode is about 3 feet wide, driven about 4 fms. from shaft, and the lode very orey. This is a very fine promising-looking lode. In the end going north, the lode is just of the same size, but of some difference of character, being not so mundicky, but with more iron, especially carbonate of iron and lime. In this end, the lode being more irony than we have seen before in the mine. This is a very kindly end, and cannot fail in time to be a productive lode. I beg to congratulate the adventurers, that although they have not got a rich lode to report to them, we have got a very strong promising orey lode, that must and cannot fail to be a very valuable copper mine. We have now just got to the depths of our rich neighbouring mines, the Botallack, which has given in dividends above 70,000*l.*, cut their ore at the 80. The Levant, which has given above 170,000*l.*, cut the ore at the same depth; and the Boscawell, which gave 70,000*l.* in dividends, is immediately adjoining us. Everything looks favourable, as well as reasonable, that we should have a valuable mine, the lodes being so similar to our rich neighbours, the strata being congenial, and the geological position very good, that I trust and hope that the adventurers will hold on, and value their property in reality.—*April* 28.

The CHAIRMAN then moved that the reports and accounts be received and adopted.

Mr. SPRATLEY observed, that he had heard there was some dispute between Capts. Evans and Eddy. After some discussion, it was suggested that the subject had better be left in the hands of the committee. The resolution adopting the report and accounts was then carried unanimously.

Mr. BIRDSEY proposed, and Mr. TORRINGTON seconded, that a call of 3s. per share be now made.

The CHAIRMAN said the next business was the appointment of a committee, and as Mr. Harvey had disqualified, there was a vacancy for a new member

Mr. PIKE suggested that, as the present committee was composed of gentlemen resident in Cornwall, that Mr. Painter should be proposed to represent the London shareholders.

The CHAIRMAN said Mr. Painter held a very large interest, nearly 800 shares, and was thoroughly cognisant of mining matters and accounts. As Mr. Painter was frequently in Cornwall upon business, he (the Chairman) would endeavour to arrange the meetings to suit his convenience.

Messrs. Lanyon, Higgs, Williams, Evans, and Greenwood (Chairman), were re-elected the committee of management, and Mr. Painter in the room of Mr. Harvey.

A SHAREHOLDER said, that as Mr. Painter was resident in London, he ought to have his travelling expenses paid for attending the meetings when held in Cornwall.

Mr. BAWDEN objected to have a paid committeeman. He was a very large holder, and considered their affairs had been well managed by the Cornish committee.

A SHAREHOLDER considered, that to expect a gentleman to go down to the mine and return at his own expense was very ungenerous.

Mr. SMITH said nearly the whole of the shareholders in the company were resident in London, and he did not think they ought to object to pay the expenses of a representative of their interest. It was eventually agreed, that if Mr. Painter was in the county at the time of the meeting, his expenses should be paid from the town in which he was stopping to the mines.

The CHAIRMAN said, at the last meeting a resolution was passed, authorising him to file a petition in the Stannaries Court against all shareholders in arrear of call. He was glad to inform them that, without having recourse to legal proceedings, the whole of the arrears had been paid, with the exception of 32s. 6d. (Cheers.)

Mr. CLIFFORD, as the mover of the resolution alluded to, considered the announcement most satisfactory.

The CHAIRMAN said, that some time back 55 shares were thrown on the cost-book, in consequence of the deaths of the holders, Mrs. Bevan and Mr. Piercy, Mrs. Bevan being in arrear of call 36*l.* 5s. At that time no legal representative could be discovered; but he had recently received a letter from Mrs. Sims, of Swansea, who had administered to the estate, and taken out a probate in December, 1853, which he now produced. He had laid Mrs. Sims's letter before the committee, and had consulted Mr. Stokes upon the subject, and that gentleman was clearly of opinion that they must restore the shares, as they would be defeated if they attempted to go to law upon the matter.

Mr. LELEAN considered it would be a bad precedent, as at the last meeting the shares were only worth from 10s. to 12s. each. Then no representative could be found; but now they were valuable, one comes forward. If he was alone, he should object to it.

Mr. PAINTER said the Chairman had taken Mr. Stokes's opinion, and they must be satisfied it was correct, and he hoped they would not think of the Court of Chancery.

Mr. CLIFFORD moved, and Mr. WILLIS seconded, a resolution, that the shares be restored, upon the payment of the calls in arrear. Carried unanimously, with the exception of Mr. Lelean, who protested against it.

The CHAIRMAN said the next question was the remaining five shares of Mr. Piercy, and Messrs. Hoppe and Boyle, the solicitors, had been employed to find out a representative without effect; under such circumstances, he considered it preferable to offer the shares for sale by auction in the room, which would bring the adventure up to the original number.—The Chairman then put up the shares, which, after a very spirited competition, commencing at 20*s.*, were finally sold to Mr. Balcombe at 34*s.* a share, the purchaser to pay the 3*s.* call made at the present meeting.

The CHAIRMAN said they so well responded to the calls, that perhaps it was hardly necessary to remind them of the necessity of doing so upon the present occasion, but as they were 400*l.* in debt, he hoped they would pay them as early as possible. The next subject to which he would allude was one affecting himself, as purser. At the present time his salary was only 4*l.* 4s. per month, and out of that his expenses in travelling to and from the mines was 1*l.* 1s. per month; he, therefore, thought the shareholders would not be doing wrong in advancing him to 6*l.* 6s. per month, an

discount he received from other mines. He must remind them that he frequently made advances out of his own pocket for the benefit of the adventurers, and never charged them 1s. for interest.

Mr. CLIFFORD moved, and Mr. HODGKINSON seconded, a resolution, that Mr. Greenwood's salary be increased to 6l. 6s. per month. After a very animated discussion, it was agreed to increase the amount from 4l. 4s. to 5l. 5s. per month.

Mr. BALCOMBE said the reports ought to be sent regularly to the *Mining Journal*.

The CHAIRMAN replied he had no objection. He sent them to Mr. Bawden, and he did not know whether they were copied and sent to the *Mining Journal*.

Mr. BALCOMBE considered Mr. Bawden's clerk ought not to have the trouble of copying the report, but it should be sent to the *Mining Journal* direct from the mines. He wished to know whether it was true that the largest number of shares were held in London?—Mr. HODGKINSON replied that, out of 5000 shares, 4000 of them were held in London.

The proceedings then terminated with votes of thanks to the Chairman, committee of management, and to Capt. Eddy, for his very able and satisfactory report.

WEST PAR CONSOLS MINING COMPANY.

A general meeting of proprietors was held at the offices of the company, Bishopsgate-street, on Tuesday,—Mr. S. W. DAUKES in the chair.

Mr. MURCHISON (the secretary) read the notice convening the meeting, and the following report:—

April 25.—In reporting for the general meeting, I beg to notice that the 45 fathom level has been driven east about 38 fathoms, on the tin lode, which is, on an average, 2 feet wide, with a little tin the whole of that distance; the last 5 fathoms also in the present end has improved, being 2½ feet wide, saving work, and of a very promising character indeed. The 65 fathom level has been rather delayed since the last general meeting, in consequence of the breakage in the engine, and the late flood letting down much water: we calculate 8 fathoms or 9 fathoms further to drive to intersect the lode—that is, the copper lode to the west of great cross-course, and the tin lode noticed above to the east. From the appearance of these lodes in the 45, there is no doubt on my mind but what we shall get much mineral in the 65, when the lodes are opened out. I was always of opinion we should find a good and lasting mine here ultimately; but I am more confident than ever, and do strongly urge perseverance. We are stamping the tinstuff from the 45 driving, and have about 150*l.* worth of tin broken, but must build a calcining-house before it will be marketable. I must again notice that the piece of ground added some time since to the sett is likely to be very valuable, from the appearance of the lode opening out eastward in the 45. We have 14 heads of stamps at work, and all of the machinery is in good order.—J. WEBB.

A statement of accounts was submitted, from which the subjoined is condensed:—

Balance last audit	£	78	0	1		
Calls received		331	18	0		
Reserved shares		81	10	0		
Bills receivable		50	1	6		
Interest		3	14	0		
Ore sold		31	19	10	= £577	3	5
Mine cost and merchants' bills	£	523	18	9			
Office expenses		12	0	4	= 536	8	1
Balance in favour of adventurers					£ 40	15	4

The CHAIRMAN moved the adoption of the report and accounts, and that they be printed and circulated amongst the shareholders. The resolution was seconded and unanimously agreed to, as also one making a call of 1s. per share.

Mr. MURCHISON stated that the arrangement between the committee and Messrs. Martin and the executors of the late Mr. Johnston, as to certain reserved shares in the company, had not been completed, and suggested that a resolution should be proposed upon the subject.

A SHAREHOLDER proposed a resolution that it be left to the discretion of Mr. Daukes (the chairman) and Mr. Harrison to settle the matter with Mr. Martin and the executors of the late Mr. Johnston, upon such terms as they may think most desirable for the interest of the general body of shareholders.—The resolution was seconded and carried unanimously, and a vote of thanks to the Chairman terminated the proceedings.

EAST SORTRIDGE CONSOLS MINING COMPANY.

The ordinary general meeting of shareholders was held at the offices of the company, New Broad-street, on Wednesday,

Mr. JOHN ROWLAND in the chair.

Mr. W. L. WEBB (the secretary) read the notice convening the meeting, and the minutes of the last, which were confirmed.

The report of the committee was then read, as follows:—

Since the last general meeting of the shareholders, operations have been partially suspended, in consequence of the engine (hired of Mr. Matthews, of Tavistock) having fallen so much out of repair that it was necessary to put in a new boiler. During this delay, the expenses were kept down to the lowest point. The engine has gone to work again, and the shaft is now down about 19 fms. from brace, and is sunk on the lode, admitting of its character being constantly in view, and its changes being marked as it proceeds in depth. The width of the lode is at present unknown; for, although the shaft with its timbers carries 7½ ft., neither the north nor south wall have yet been seen. It has been recommended by your manager, and other agents who have inspected the mine, to cross- ut in the 20 fm. level, to ascertain the width of the lode, and form a judgment of the parts of it at present unseen. This operation may be carried out in about three or four weeks from this time.

All the reports of Capt. Richards, and the resident agent, state that the lode continues to improve in appearance in depth, and that the lode stuff contains copper, as well as all the usual indications accompanying a copper deposit. Very sanguine expectations have been formed, and (from present appearances) continue to be held, of this property. Many agents well acquainted with all the mines in the district say that this cannot be considered a speculation, and that it is impossible we can fail to find a deposit of mineral with such indications, and that, too, at so shallow a depth.

Your committee, not being all miners, are not qualified as a body to form an opinion upon the correctness of these views, but lay them before you as the opinions of those whose experience they believe entitle them to full credit.

It will be recommended to this meeting to adjourn for six weeks; by that time much will have been done to assist your deliberations for the future. The statement of accounts, which will now be read, show that a large amount of calls remain unpaid. Every shareholder knows that if is impossible to carry on mining works economically, unless calls are properly paid up. Calls are made only just to cover estimated expenses; therefore, if any remain unpaid, debts must be incurred, which cannot be booked without the trader adding something for the accommodation he affords, which addition, in whatever way it is made, is so much loss to the mine.

The committee, with great reluctance, recommend that a special general meeting be held on the same day as this meeting shall be adjourned to, for the purpose of absolutely forfeiting all shares that may then be in arrear of call; and that notwithstanding such forfeiture, the names of the then defaulters be given to the creditors, with instructions to them to sue such defaulters for the debts of the company.

The reports of Capt. J. Richards and Capt. A. Down were next read as follows:—

April 9.—The sinking of the engine-shaft is again resumed, and about 4 ft. has been accomplished: the part of the lode being carried 5 ft. wide (the width of shaft) is decidedly improving, being composed of very fine light capel, mundic, and abundance of prian, quartz, gossan, and a little black oxide of copper.

April 23.—During the past week we have sunk the engine-shaft 3 ft. 6 in., making it altogether 11 fms. 0 ft. 6 in. from brace. We are in the lode the whole size of the shaft, including timber, which is about 7½ ft. wide, and as yet have neither wall. It is still very promising, containing quartz, capel, prian, flookan, peach, &c., strongly impregnated with copper. Judging from the strong and masterly appearance of the lode, from surface to the present bottom, my opinion is that it cannot in depth fail to produce large quantities of copper ore. The ground is still favourable for sinking; water not so quick.—A. DOWN.

A statement of accounts from Jan. 29 to April 29 was submitted, from which the subjoined is condensed:—

Balance last audit	£40	8	10			
Calls received	299	4	9	= £339	13	7
Mine cost	126	0	8			
Merchants' bills	98	1	4			
Reports, arrears of committee's fees, stationery, London expenses, &c.	57	10	11	= 281	12	11
Balance in favour of adventurers				£58	0	8

The CHAIRMAN moved that the reports and balance-sheet be approved and adopted. The resolution was seconded, and carried unanimously.

A resolution was also passed, that a special meeting be held on June 3, for the purpose of forfeiting all shares in arrear of call; and a vote of thanks to the Chairman terminated the proceedings.

SORTRIDGE CONSOLS MINING COMPANY.

A meeting of shareholders was held at the London Tavern, Bishopsgate, on Monday,

Mr. WM. ORR in the chair.

Mr. D. COHEN (the secretary) read the notice convening the meeting, and the minutes of the last. The accounts and the report of the committee (which appeared in the Journal of Saturday) were taken as read. He then read the report of Capt. Jas. Richards, dated April 24, from which the following is condensed:—

At Hitchins's engine-shaft the trip plat has been completed, and plunger-lift fixed from the 62 to the 30. A piece of ground south of shaft has also been taken down, and the shaft is now being carried diagonally on the course of the lode; the lode is 3 feet wide, containing capel, mundic, peach, quartz, and rich stones of ore, and is altogether exceedingly promising.—Hitchins's Engine-shaft: The 62 has been driven east 8 fms.; the lode is 3 ft. wide, composed of capel, quarts, and mundic, with a little ore only; price for driving 5*l.* per fm.; the same level has been driven west 3 fms.; the lode in the present end, so far as cutinto, is 2 ft. wide, containing capel, mundic, quartz, and stones of ore; it is now being driven for 6*l.* 10s. per fm. The 50 has been extended west 6 fms., or a total of 53 fms.: the lode will average 18 inches wide, composed of flookan, mundic, and quarts, with occasional stones of ore; this drivage is suspended, and the men removed to cut plat, &c., at the eastern shaft, which will be completed in about a fortnight, when driving will be resumed. The 50 has been extended east 8 fms., or a total of 59 fms.; the lode will average 6 ft. wide, containing very fine capel, mundic, peach, quartz, and ore, worth, on an average, 1½ ton per fm. The lode in the present end (driving at 5*l.* per fm.) is of same size and value; this drivage has to be driven about 7 fms. further to reach the boundary. The rise in back of 50, about 10 fms. west, has been put up 6 fms., and communicated with the 40 above; the lode for the first 4 fms. yielded ore to the value of 1 and 2 tons per fm.; from this point it became unproductive. The 50 cross-cut south has been extended altogether 30½ fms.; the ground is easy for progress, and is being driven for 3*l.* per fm.; no lode met with. The 40 has been extended west 10 fms., or a total of 66 fms.; the lode will average 18 in. wide, composed of flookan, a little gossan, quartz, and occasional stones of ore. The lode in the present end shows improvement; it is 2 ft. wide, containing quartz, mundic, peach, and stones of rich ore, and promises further improvement; this end is being driven for 2*l.* per fathom. The 40 cross-cut south, under the western shaft, has been driven altogether 5½ fms., and intersected the south part of the lode; it is 2 ft. wide, composed of a mixture of killas and gossan. In the back of this level (the 40) a rise has been put up against the western shaft 9½ fms., and is within a short distance of being communicated with the shaft, which will be effected in the course of another month. Bryant's winze has been sunk about 6 ft., and communicated with 50 below; the lode for the whole depth proved to be a good course of ore, worth, for the length of sink (7 ft.), 3, 2, and 1 ton per fm. In Bryant's stopes, east and west of Bryant's winze, 31 fms. have been taken away, or a total of 37 fms.; the lode is worth, in places, 3, 2, and 1 ton of ore per fm., and is now being explored for 1*l.* 15s. per fm. Edwards's stopes, in back of the 50 west, are being worked for 1*l.* 10s. per fm., and altogether 22 fathoms have been stoped, which, on an average, yielded 1½ ton of ore per fm.; the lode at present will yield only ¼ ton per fathom. A new winze is being sunk below the 50, on the south branch; it is down 4 ft.; the branch is 6 in. wide, and worth ¼ ton of ore per fm. The 20 has been driven east, on the north part of the lode, 6 fms., and is communicated with the eastern workings, and the water conveyed to the shaft. There are seven pitches working in and throughout the mine, at an average tribute of 6s. 5d. in 1*l.* The ore reserves are equal to the last estimate—426 tons, which enables us to calculate on sampling 120 tons every two months, at an average cost of about 46*0l.* per month. An improvement has also taken place in the 40 west, and may be expected to improve still more as it approaches the cross-course; so that on the whole, we are looking better.

Mr. PRITCHARD said, that with the expectations held out by that report, he would ask the committee whether they did not consider it judicious to make a small dividend? They were getting but 5 per cent. upon their money, which certainly was not a mining profit, or one which could recompense them for the risk of mining speculations. Their produce was equal to their expenditure, and yet they kept 4000*l.* at the bank. Considering their mine was upon the Cost-book System, he much doubted whether it was legal to keep so large a balance in hand. He thought the more correct course was to divide their profits as they were made, and if they afterwards made losses to make calls to meet them. He did not see the objection to a dividend of 5 per cent. being paid.

Mr. SCHOFIELD thought Mr. Pritchard's argument was based upon erroneous principles. They had really only 2955*l.*, or in round numbers 3000*l.*, available. They had made a profit it was true, but he questioned whether they had laid open so much ore during the past quarter as they had sold; and if they had no such improvement as was anticipated in the report, they would have a loss. The question for their consideration was, would they have a small dividend now and pay calls afterwards, or would they keep money in hand, so as to place the mine in a permanently dividend-paying state. They should recollect that a very slight change in the mine would cause them to lose considerably more than 500*l.* a quarter, which was the amount of profit during the past three months, and a very slight improvement would considerably increase their quarterly profits.

Mr. PRITCHARD said, that after this explanation, he should not press for a dividend, and he even thought it desirable to act upon the advice of the committee.

A proposition was moved and seconded for declaring a dividend of 1s. 6d., but upon being put to vote was lost by an immense majority. The committee were then re-elected, and the meeting terminated with votes of thanks to the committee and Chairman.

NEW GRANADA MINING COMPANY.

The general meeting of shareholders was held at the office of the company, Adam's-court, Old Broad-street, on Tuesday,—Mr. CHARLES JOHNSTON in the chair.

Mr. BREFFIT (the secretary) read the notice convening the meeting, and the report, from which the following is condensed:—The directors refer to the short statement they gave in Nov. last, explaining the heavy loss sustained by the company for the half-year ending June 30, and which has, of course, affected the profit and loss account for the whole year. They are glad, however, to say that the results for the last six months have more than repaired that loss, which will be seen to have been about 1560*l.* 17s. 10d., the profit since realised having been 1984*l.* 3s. 4d.—a satisfactory result, mainly owing to the reinstatement of Mr. Whiteford as the company's engineer. The profit and loss account, which shows a balance of profit of 269*l.* 10s. 5d., includes (to its debit) two items transferred from outstanding accounts and now written off, amounting to 577*l.* 2s. 4d.; had it not been for these, the nett profit would have been upwards of 840*l.* At Bolivia, the crushing had been limited, on account of the extreme scarcity of water. At Frontino, the new works undertaken during the year are of considerable importance, comprising a fresh mill of 12 stamps for re-stamping the mineral sands, furnaces for the reduction of the fine ore on hand and in course of accumulation at the mine, and a tramway intended to bring the large 30-head mill in immediate connection with the mine. The mine itself was looking well, and the works of discovery for new lodes proceeding satisfactorily. Mr. Whiteford states, from May forward he anticipates that the returns from Frontino will be greatly increased, and leave a large profit on the working costs. The directors beg to say that, viewing the past disappointments of the company, they consider it most becoming on their part to leave their fees for attendance in abeyance, only claiming them at some future time, should the anticipated improvement in the produce of the mines take place.

A statement of the accounts, for the year ending Dec. 31, 1856, was submitted, from which the following is abstracted:—

Balance from last account	£	477	1	6		
Interest account		37	8	7		
Bolivia Mine revenue account, nett profit		1420	11	0		
Frontino Mine, ditto		827	12	11	= £2762	14	0
London expenses	£	632	13	6			
Medellin ditto		1219	4	4			
Losses transferred		587	11	6			
Expenses in Bolivia:							
Mineral brought from New Granada		53	14	3	= 2493	3	7
Balance for nett profit					£ 269	10	5

The nett gain for the half-year, from July to Dec. inclusive, was 1984*l.* 3s. 4d.

A SHAREHOLDER asked if the company was working under the Limited Liability Act?

Mr. JOSIAH WILSON replied they were more secure than under that Act, as if the parties did not come forward to register their shares, the directors were liable for all debts contracted.

The CHAIRMAN, in answer to questions, said they fully expected the present half-year to make a very fair profit. Mr. Whiteford, their agent, had got the works in such a very forward state, that he would have every opportunity of testing the mine the ensuing six months, and if they found gold seeking not a paying speculation, he should advise a dissolution of the company; but he was happy to say the directors expected a very different result. The next gold returns would be in August, when a report would be published of the result of the six months' working, which he trusted would show something beneficial for the shareholders. (Cheers.) The Chairman concluded by moving the adoption of the report and accounts.

Mr. JOSIAH WILSON seconded the resolution, which was carried unanimously.

SOUTH AUSTRALIAN COPPER MINING COMPANY.

A special general meeting of shareholders was held at the offices of the company, New Broad-street, on Monday,—Mr. WINCKWORTH in the chair.

Mr. W. L. WEBB (the secretary) read the notice convening the meeting.

The CHAIRMAN said he was sorry to be compelled to call them together, but it became necessary under the circumstances, as, although it really was a mere matter of form, it was found to be impossible to carry out the compromise with the defendants in the suit which had been agreed to some time ago without having the sanction of the proprietors of this company, as the directors now merely acted as a committee to carry it into effect. Mr. Vallance would state the course proposed to be adopted.

Mr. VALLANCE said, the first resolution to be submitted was to take into consideration a conditional agreement for the compromise of the suit of Thompson *v.* Armitage and others, and either to sanction the compromise, or to pass such resolutions as the meeting may think. The different counsel for the defendants had advised them that they ought to have the sanction of both companies before they could comply with the terms, which were—to pay the sum of 3150*l.* into the Commercial Bank, in full discharge of all claims made against them, on behalf of the company, the defendants paying their own costs. Mr. Vallance having read a draft of the proposed agreement,

Mr. STEVENS moved, and Mr. PENNINGTON seconded, a resolution to the effect that the terms be accepted, and approved and confirmed—Carried unanimously.

A PROPRIETOR wished to know whether they did not obtain a verdict against the defendants for 8000*l.*?

Mr. VALLANCE explained that the proceedings were in Chancery, and a decree was obtained for 8000*l.*; but unfortunately only one of the defendants was in solvent circumstances, and he, in fact, was not the party who had received the money. It must, therefore, be considered as a very favourable arrangement. Mr. Vallance read the draft of the deeds, and moved that they be approved of for carrying into effect the resolutions of the special general meeting, held February 4, for vesting all the property of the South Australian Copper Mining Company in the Strathalbyn Mining and Smelting Company.

A PROPRIETOR wished to know whether the shareholders in the South Australian Company would be indemnified from all debts?

Mr. VALLANCE replied, that the shareholders in the old company were legally indemnified from every liability by the Strathalbyn Company.—The resolution was then unanimously carried.

A PROPRIETOR wished to know the amount or value of the property transferred from one company to the other?

Mr. VALLANCE said, a balance-sheet was sent round to every shareholder, and the value was estimated at 11,400*l.*, and a call of 1s. (2500*l.*) had been made. All the property would appear in the first balance-sheet of the Strathalbyn Company, which would be presented to the meeting in July next.—The proceedings then terminated.

STRATHALBYN MINING AND SMELTING COMPANY.

An extraordinary general meeting of the company was held at the offices, New Broad-street, on Monday,—Mr. WINCKWORTH in the chair.

Mr. W. L. WEBB (the secretary) read the notice convening the meeting.

The CHAIRMAN said, the meeting was called for the purpose of taking into consideration a conditional agreement for the compromise of the suit of Thompson *v.* Armitage and others; and although the proceedings might only be considered of a formal nature, he should be happy to give every information, and answer any questions that might be put to him. The proprietors knew by the reports in the *Mining Journal* that they continued to receive satisfactory statements from Mr. Squarrey; and if they were not very brilliant, he believed they were honest. They had now 160 tons of ore on the way home, and 60 tons had been unfortunately lost, but was fully covered by insurance—a course they invariably adopted. (Hear.) With respect to smelting on the spot, they had not yet succeeded, but they fully expected eventually they should do so. Hitherto, there was something in the ores which parties did not understand, but Mr. Squarrey was in communication with gentlemen in the colony of great experience in smelting, and through whom he hoped to surmount the difficulty.—A resolution was then proposed, that the conditional agreement for the compromise of the suit be accepted, and that the directors sign the necessary documents for obtaining the property of the South Australian Copper Mining Company.—The motion was seconded, and carried unanimously.

Mr. CHAS. LOCOCK WEBB wished to know whether sufficient money had been sent out to Mr. Squarrey to satisfy the liabilities; also the quantity of lead ground laid open, and the prospects of copper ore?

The CHAIRMAN said, at their own personal risk, the board had sent out the amount required. They were sinking, and not driving on the lode at present; the lode was 18 feet wide, consisting of oxide of lead and jack. With respect to the copper, they had every encouragement; and believing it to be a valuable addition to the adventure, they had ordered machinery adequate to the full development of that portion of their property. The monthly expenses would be between 400*l.* and 500*l.* when they were in full operation.

Mr. W. L. WEBB (the secretary) said, there had been sent home 400 tons of carbonate of lead ores, and there was about 600 tons left. The total cost, including raising and delivering in this country, was about 5*l.* 5s. per ton, and it had sold for from 8*l.* 10s. to 10*l.* per ton. He believed, if they succeeded in the smelting works, they would make an excellent profit.

The CHAIRMAN strongly advised those parties who had not paid their calls to do so forthwith, as he agreed with Mr. C. Locock Webb that it was of the greatest importance to keep the manager supplied with the necessary funds.

The proceedings then terminated with a cordial vote of thanks to the Chairman.

THE ARUNDELL COPPER MINING COMPANY

ASHBURTON, DEVONSHIRE.—Established 1852.

10,000 Shares, £1 16s. paid per share.

Proposed to be placed under the Law of Limited Liability, in pursuance of the Resolution of a General Meeting of the shareholders,

THE COMMITTEE (Elected at the General Meeting, 10th February, 1857).
Capt. W. S. MOORSOM, Great George-street, Westminster.
Capt. F. S. PARRY, Terrace, Worthing, Sussex.
W. R. PARKER, Esq., Manor House, Bexley, Kent.
J. HYDE PIDCOCK, Esq., Leighton Buzzard, Bedfordshire.
SHIRLEY WOOLMER, Esq., 97, Grosvenor-place, Hyde-park.

BANKERS.

The London and Westminster Bank (Temple Bar Branch, 217, Strand, London).

OFFICES OF THE COMPANY.

16, BARGE YARD CHAMBERS, BUCKLERSBURY, LONDON.

In the year 1852, in consequence of the discovery of a large mineral lode in an estate near Ashburton, Devonshire, leases or mining setts over the property were obtained, and this enterprise was commenced; within a few months afterwards a large paid-up capital was secured, and the shares attained a considerable premium.

The surface plans show the situation of the setts, which are numbered 1, 2, and 3, with Smerdon's land, No. 4, comprising an extensive mining area.

The setts are held for various terms under leases from the freeholder, at mine rents, and royalties of one-twentieth of the ores, &c. The sections generally illustrate the present workings underground.

The reports by which the sanguine views of the original promoters of the Arundell Mine appear to have been influenced, were of the most favourable character, and the interest attached to the enterprise was further increased by a report, dated Aug. 20, 1852, by then engineer, suggesting important considerations, arising from the nature of the discovery near Ashburton, and the position of that district in relation to the well-known Tavistock district, from which it is separated by the intervening granite range of Dartmoor. (See the geological map of the County, and the reports in the appendix).

In the month of October, 1852, it was ascertained at the Arundell Mine that, at the shallow depth from surface of about 6 fathoms, the lode or mass of mineral matter was of the unusual width of 30 feet, and the indications for mineral were good. Instead, however, of continuing operations on that part of the lode, which would seem to have been the natural course, but which was decided against, in consequence of the proximity of the shaft in that part to the then boundary of the sett, as will be observed on reference to the plans and sections, an adit or level was, under the management of the then advisers of the company, commenced at a considerable distance off, on the descent of the hill, and carried forwards during a long period, to an extent exceeding 140 fms., when after the loss of much time and expenditure, it was found, to the great disappointment of the shareholders, that, although the lode had been intersected, and was of even greater width than where cut through in the original shaft, nearly 100 fms. off, the lode was opened on about 18 fms. only from the surface, instead of 25 fms., as had been calculated on, and at that shallow depth no levels were extended.

In the year 1853, it was decided that the opinions of eminent practical men, connected with the Tavistock district, should be obtained. Accordingly, the advice of Capt. James Richards, (of the Devon Great Consols Mine), in conjunction with that of Josiah Hitchins, Esq., also so well known as associated with the early history of that mine, was sought. The engagements of Capt. Richards at that time prevented his visiting Ashburton; but Mr. Josiah Hitchins inspected the property, and his view of it will be best collected by reference to his then report, which follows:—

Tavistock, May, 1853.—I had great pleasure, a few days since, in attending at the Arundell Mines, near Ashburton, and looking over the sett. From the great width of the lode, the rich character of the gossan, the general features of the lode and the adjoining strata, not forgetting that there is a cross-course intersecting the lode not far to the west of the large mass of gossan, and from other peculiarities, I cannot but be impressed with a very decided and favourable opinion of the concern, and that it will result in a very profitable undertaking. The intention to give the enterprise a large and spirited development, by at once erecting a suitable steam-engine, and making a good downright shaft, will be the proper and necessary course of proceeding without delay; and I again repeat my conviction that success will be the result. —J. H. HITCHINS.

Mr. Hitchins subsequently accepted the office of consulting director, and, acting upon his advice, further operations at the adit were discontinued, and the intersection of the lode, at the depth originally intended, was deferred, so that the mine at this part is consequently improved.

The erection of a steam-engine was decided on; but, instead of again sinking on the course of the great lode, the position of the engine-shaft was fixed at a distance, being about 27 fms. south from the known part of the great lode (as will be observed by the sections), and which shaft, on being sunk, could only intersect the lode after much time passed and great expense incurred. However, there appeared satisfactory reasons for thus doing; for the shaft was so placed by the skilful foresight of Mr. Hitchins, and planned, not for immediate results, but with a view to the ultimate working of the mine, when the lode should be laid open at a sufficient depth; and from the position in which the engine is placed (not far from the boundary of the sett), it was intended to command not only the workings in the sett then belonging to the company, but also on the course of the lode in an adjoining property, not then belonging to the company, but which Mr. Hitchins considered of great importance to obtain, and which was subsequently added to the Arundell property, and is now known as Smerdon's land.

Although a new feature was thus given to the enterprise, up to this period the lode in this added sett has not been opened upon. Explorations at that part are therefore intended.

The operations in sinking the great engine-shaft, and driving a cross-cut at the 25 fms. (see the sections), occupied the time up to October, 1854, when Capt. James Richards visited the mine, and made his report, and from which the following is an extract:—

Devon Great Consols Mines, Nov. 13, 1854.—Taking into consideration the indications presented by these masterly and highly mineralised lodes, from which although not more than 36 fms. from surface, some good ore has already been raised, and the important fact of their being imbedded in killas similar to that in which the productive lodes of this districts are found, as well as the various intersections by elvan courses, the Arundell Copper Mine will, there can be no reasonable doubt, when developed to a moderate depth, prove as productive and profitable to the proprietors as the rich mines in the same direction on this side of Dartmoor Hills.—J. RICHARDS.

Encouraged by such reports, the mining operations were continued with vigour, and great expectations of success. The engine-shaft was sunk to the depth of 46 fms. from surface, and additional cross-cuts made, in pursuance of Capt. Richards' advice, at the 36 and 46 fm. levels (see the sections), and expensive explorations were commencing, and intended to be continued in the lodes, and extended into the Smerdon sett; when in June, 1855, just at this interesting part of the adventure, the well-known banking failure occurred, members of the firm holding very large share interests in the mine. This, of course, at first impeded, and, in connection with other unexpected circumstances, ultimately induced a temporary suspension of the workings at the mine; and, subsequently, a shareholder, holding but 55 shares out of 10,000, further impeded the progress of the company by commencing proceedings in Equity, which are still pending, and which the great body of the shareholders are determined to resist.

The views of the shareholders of the Arundell Mine, as to their property and prospects, will be best evinced by a resolution unanimously passed at their general meeting, held on June 28, 1855, expressive of their confidence in the enterprise, and that it was fully deserving of continued and increased support. The report of Capt. Wm. Thomas, (formerly of Pool Mine, Cornwall), and subsequently the manager at the Arundell Mine, received at such meeting, will also be read with interest.

At another meeting of the shareholders of the Arundell Mine, held on April 22, 1856, at which no less than 7928 out of the 10,000 shares were represented, similar favourable opinions were recorded.

At the general meeting of shareholders, held on July 18, 1856, letters received by the Chairman from Mr. Josiah Hitchins, of Tavistock, and from Capt. James Richards, of the Devon Great Consols Mine,* and a report from Mr. H. Drewe, former manager at the mine, were read, and the following resolution was passed:—

"This meeting receives with much satisfaction the reports and communications submitted this day, and especially the favourable opinion of Capt. James Richards,* and renews its expression of confidence in the enterprise; and, considering the discoveries already made at the mine, the continued favourable reports, the present outlay, and the machinery and plant at the mine in immediate working order, and that extensive explorations can now be carried forward for the costs of labour and the ordinary expenses of a mine,

Resolves,—That it is desirable for the interests of the shareholders that the company should be continued, and the operations at the mine carried forward with vigour, under practical advice, and that the shareholders be invited heartily to co-operate for the purpose.

At a general meeting of the shareholders held on Dec. 10, 1856, the reports of a deputation which had visited the mine were received, and the mine having been re-inspected, in pursuance of the before-stated resolutions, the reports of J. H. Pidcock, Esq., and of Capt. Philip Hawke, manager of the Queen of the Dart Mine, were presented to the meeting.

The following is an extract from the report of Capt. Hawke:—

The Arundell Copper Mine.—Regarding all the circumstances to which I have referred, and having also examined the various reports of the agents and other persons as to this mine, I have no hesitation in stating my decided conviction that this is a property of very great value, and were it, as Capt. Thomas refers to in his report of June, 1855, in Cornwall, or in a proved mining district, it would be difficult to overrate its value as a great speculative enterprise. I have no hesitation in stating my conviction that if the Arundell Mine is properly opened (and I have offered my views as to the present best means of doing so), and the operations carried on by practical men, on such a scale, and with such a system and economy as would be adopted if such a property were in the mining districts of Cornwall, instead of Devonshire, a very valuable mine will speedily be realised; the whole adventure—notwithstanding the mistakes which have already been made, and outlay in many parts ineffectually expended—is full of promise, and reasonable expectation of ultimate and, most probably, speedy success. My belief is, that an immense deposit of copper or other mineral ore will be laid open in this mine, and may not be far off, even in the present workings, or certainly (if the best mineral indications can guide us) exists at greater depth. The important working parts of the mine are only commencing, and I must say, that not to carry forward such an adventure with energy, now that so much heavy work has been completed, machinery and plant ready, and labour principally required, would be a reproach upon all mining adventurers.—P. HAWKE: Oct. 27, 1856

The last general meeting was held on Feb. 10, 1857, of which a printed report may be obtained.

A reference to the plan of the setts, and to the sections which accompany, will be necessary correctly to understand the nature and extent of the operations at the mine, as now opened; and it should be observed with particular attention, that the mining operations are at present all in sett No. 1, and that setts 2 and 3, and Smerdon's Land, sett No. 4, remain, therefore, for exploration.

The original cash capital of the Arundell Mine was £5000, which has been subsequently increased by six successive calls of 2s. 6d., and one of 1s. per share; thus making £1 16s. paid per share.

It is estimated that a cash expenditure exceeding £12,000 has already been made by the company, which, being independent of the large purchase in shares, issued as paid-up to the original amount of £1, by which the Arundell Mine was acquired for that company, would represent altogether a capital exceeding £16,000 in the adventure.

The large sums already expended by the company, the steam-engine, now in excel-

* Capt. Richards, in his letter, dated May 26, 1856, says:—"I believe the Champion Lode will one day prove that the favourable opinions entertained by all the practical men who have seen it are true."

ent order, together with the plant, pitwork and materials, with the smiths' and carpenters' shops, mine and other offices, complete, and all of recent erection, offer great inducement as well as facilities for carrying into effect the resolutions of the shareholders.

The Arundell Copper Mine, as a *bona fide* affair, therefore forms an enterprise of no ordinary interest and promise, worthy the consideration of capitalists connected with mining interests; and it is hoped that the original shareholders having at such great cost ascertained the existence of large mineral deposits and highly mineralised ground, it will be the good fortune of the present shareholders, and of those who may now be disposed to join with them in the adventure, to realise, by a further comparatively small outlay, and at an early period, as frequently occurs in mining adventures, those successful results for which the energetic but hitherto unrewarded original shareholders have expended so much capital, time, and labour.

The circumstances stated, which for awhile prevented the continuance of active workings at the mine, would also naturally deter the original shareholders, who had already paid so much, from readily paying many further calls to supply necessary expenditure, and, without adequate capital, mining, like all other commercial adventures, cannot be expected to succeed; but it would indeed show a want of enterprising spirit, and an unwise economy, not further to prove the mine, and the extensive mineral property belonging to the company, by some further outlay, applied under judicious management. The principal shareholders, holding large interests in the mine, will heartily co-operate in the effort.

It has therefore been decided that, exclusive of any calls which may be further made by the shareholders themselves, that for providing additional funds effectively to carry on the intended operations, and which are now in progress, the issue of the whole of the shares the company have power to issue should forthwith be made,—such shares, being of the same amount as the other shares paid-up to £1 16s. per share, will be issued on terms to induce a prompt payment of additional capital for vigorous working during the spring and summer months.

Subscriptions are therefore invited for such shares, from any parties willing to take an interest in this enterprise, provided the offers for them are not under £1 per share, and that the number to be issued does not exceed 2000 before the next general meeting.

The amount will be payable at the company's bankers, on account of such shares, within fourteen days after the allotment has been signified by the secretary, and early application is requested to be made by the accompanying letter to the secretary.

For further information, inspection of the plans, sections, the former and recent reports of mining engineers, or agents, cash accounts, or other documents relating to the mines, application (either personally or by letter) may be made to the secretary, Mr. P. F. Nursey, at the offices of the company, No. 16, Barge-Yard Chambers, Bucklersbury, London.

THE ARUNDELL COPPER MINE, ASHBURTON, DEVON.

Prof. Ansted, F.R.S., in a report made in 1854, thus refers to the Arundell Copper Mine, and the adjacent property of the Borough Wood, in relation to the general geological conditions of the Ashburton district:—

EXTRACT FROM THE REPORT OF PROF. ANSTED, F.R.S.

17, *Manchester-street, London, May* 12, 1854.—I have now submitted for my inspection specimens of native copper (probably containing native silver) met with in other leaders more recently cut in sinking Victoria shaft, and specimens of quartz with strong indications of ore from the top of a lode apparently the same as the Arundell lode, but considerably further east in the Borough Wood estate. Judging from the ores and veinstone thus submitted for examination, and from the known position of a considerable line of fault (probably itself a lode) marked on the Geological Map of the Government Survey, it seems certain that an unusually large east and west mineral vein is here present—that this vein is probably crossed by another (a counter lode) also very large—that these are connected with numerous strings and threads containing black oxide of copper and native copper—that near the intersections these lodes contain a very large quantity of ore—and that this ore is present at moderate depths; it also appears not unlikely that the richest and most valuable part of the lode is near and beyond the eastern boundary of the Arundell sett, but I am unable to speak with certainty as to this point, not having seen the property myself. It is, however, clear that the general geological conditions of the district are extremely favourable for the existence of mineral wealth, inasmuch as the containing rock is metamorphosed and fractured, the granite of Dartmoor at no great distance, and the altered schists in the immediate vicinity are sufficiently mineralised to justify the best expectations; these are facts well known by practical men to indicate the vicinity of profitable lodes. D. T. Ansted, F.R.S., Consulting Mining Engineer.

This district, with the neighbourhood of Buckfastleigh, now attracts much attention, and when properly opened up by spirited enterprise, may hereafter prove as productive of mineral wealth as the favoured district of Tavistock, on the other side of the Dartmoor, and in due time continue to Devonshire the substantial advantages arising from the discovery of such prodigious wealth as from beneath its surface seems to invite research and to be waiting to reward enterprise, as in the instance of the Devon Great Consols Mine, near Tavistock, now in its thirteenth year of successful operation, and as to which the following line, taken from the Mine Share List of the *Mining Journal*, April 18, 1857, will be more conclusive than accumulated statements:

Shares.	Mine.	Paid per Share.	Present price.	Dividends per Share of £1.	Last Paid.
1024	The Devon Great Consols (copper), Tavistock ...	£1	£450 460	£556	March 27, 1857. £14.

The recent introduction of British Mining Shares into the Quotation Lists of the Stock Exchange is another circumstance favourable to mining enterprise; so that, in the *Times*, and other periodicals, the current prices of established and progressive mines may now be found.

FORM OF APPLICATION FOR SHARES.

To the Committee of the Arundell Copper Mining Company.

Gentlemen,—I request you will allot me, at the sum of £1 per share, shares, paid up to £1 16s. each, in the above-named company; and I hereby agree to accept the said shares, or any less number allotted to me, and to pay the sum of £1 on each share at the time specified in the letter of allotment.

Dated this day of , 1857. Name in full.....
Residence .....
Profession or business .....

To be addressed, Mr. P. F. Nursey, Secretary, Arundell Copper Mining Offices, 16, Barge-yard Chambers, Bucklersbury, London.

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PRICES OF ADMISSION.—From the 6th to 16th May (both days inclusive), 2s. 6d. for each person. On and after Monday, the 18th May, 1s. for each person, except on Thursday in each week, when the charge will be 2s. 6d. for each person.
N.B. There will be also certain days (not exceeding eight in all) specially reserved for proprietors of £2 2s. season tickets, of which due notice will be given by public advertisement at least seven days beforehand.
SEASON TICKETS, at £2 2s., entitle the proprietors to admission on all occasions when the Exhibition is open to the public; Tickets at £1 1s. entitle to admission on all but the "reserved days." These tickets may be procured at the Exhibition building, or at the offices, 100, Mosley-street.
Season Tickets are not transferable, and must be signed by the proprietor before being presented at the entrance of the Palace, where a book will be kept in which the proprietor will be required to write his or her name whenever requested to do so by the officers of the committee.
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SMOKING in any part of the Palace is strictly prohibited.
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Arrangements are being made with the various railway companies to enable visitors to come direct from any part of the country to the building. The London and North-Western Railway Company have arranged to convey passengers from London by the 6.15 A.M. train, returning to London in the evening, allowing four or five hours in the Exhibition. THOMAS HAMILTON, Sec.
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The mines of this company are situated four miles to the south of Skibbereen, in the barony of West Carbery, in the county of Cork, a district which has, for many years, been famous for the production of copper ore, and which, from further recent valuable discoveries, is again beginning to attract the serious attention of capitalists and miners.
A good road leads from the mines to Castletownsend, where every facility exists for shipping ores at all seasons of the year.
The sett, which extends under 1800 acres, in a country of the most favourable geological formation for producing copper ore, contains two distinct mines, at a distance of half a mile apart. These were originally opened about 18 years ago by a small private company of gentlemen, resident in London, who left the entire conduct of the operations to their local manager. They were not, however, more fortunate than many others engaged in similar undertakings in that locality in avoiding the gross extravagance and mismanagement which at that time seemed to be the rule; rendering success impossible; and after a short working, and the expenditure of several thousands of pounds, they abandoned them at the very time when economy and judicious management would have rendered them highly profitable.
The whole of the adits, shafts, and levels in the northmost of the mines have been lately cleared up, and a great extent of ore ground laid open; whilst, at the same time, about 1500 tons of excellent orestuff have been brought to surface.
The mines have been carefully surveyed by Mr. Matthew Francis, whose minute report, which is beyond the limits of this advertisement, may be had, with the prospectus, at the company's office; or will be forwarded, free, on application. But the following extracts from it will suffice to show the present condition of these mines, and the flattering prospects which they hold out:—
"The lode in the northmost mine is almost perpendicular, its underlie being only 2 in. in a fathom to the north. This lode has been opened for a depth of 29 fms., or 20 fms. under the adit. It is about 12 ft. wide, on an average, and is composed of a beautiful grey oxide of copper, yielding 27 per cent. when cleaned, a very fine description of spar, and a thick wall of elvan, or indurated rock, on the south side, or footwall. I should recommend that this ore be assayed for silver, which, from the appearance of the killas, I believe it holds in some considerable quantity. The length of ore ground yet opened is about 100 fms., which appears to increase in value in the lower parts of the mine. The men were blasting down some very rich ore in the 20, or lowest level, when I was underground.
I calculate that, if a steam-engine were erected for drawing and crushing, 100 fms. of ground might be easily taken away per month in the present state of the mine, which would give a profit of 600*l*. My opinion is that this rate of profit may be relied upon for a very long period.
In the first place, there must be a steam-engine erected, and this is the most important object to be speedily obtained; and as the ends of the mine are still in ore ground, which may continue, and increase the length and produce of the mine to an unknown extent, I should say it would be judicious to erect an engine capable of doing twice the work.
The grant contains three other known lodes, to the south of the principal mine the second of which, in that direction, I found opened by an adit level, in a rise, from which I saw an excellent course of grey copper ore, accompanied by spar and the greens of copper, worth from £10 to £12 per fm.; and as this ore is in a rise, and extends into the whole ground that forms the end of it, both to the east and west, I cannot conceive the reason for which the working was suspended, as it would give good profit. I would add that there is water-power to work this mine which would be available for a considerable depth.
In concluding this notice of your mines, I would again advise you to erect the steam-engine at once, without going to further expense in breaking ore. The returns from the ore already at grass will enable you to carry on all your necessary mining operations, and to divide a good surplus in profits. All necessary substantial buildings, shops, &c., are erected, and convenient upper dressing-flooring constructed for carrying on immediate operations on a large scale; while all future buildings can be economically constructed, as stone and slate exist in abundance upon the property, and everything underground and at surface evidence to me that the present management is in able and judicious hands."
This opinion, so far as extends to the very rich quality of the ore ground, and the paramount necessity of crushing and cleaning it, is strongly supported by a letter from the agents at Swansea, to whom a small experimental cargo was consigned, and which may be had, together with the report.
Within the last few days the following gratifying and important advice has been received from the manager of the mines:—
"Since I wrote you last, I have, with pleasure, to inform you we have discovered a most splendid looking lode in getting out the foundation of the boiler-house. It is about 15 fms. to the south of the great lode and whim-shaft; a very fine gossan, spar, and prian, with some black oxide of copper, carbonate of lime, &c.; I believe it is over 6 ft. wide, and the strata about the lode is of the finest character of killas and porphyry."
As the new lode can, of course, be worked be the machinery now in the course of erection, it is needless to dwell upon the additional value which this discovery imparts to the north mine since the date of Mr. Francis's report.
The mines have been purchased by this company, and 8000 shares are reserved for the purchase-money and contingent expenses. The ore at surface will be taken at Mr. Francis's valuation of £1500; one-half to be paid at once, and the remaining half as soon as the mine declares a dividend.
A fresh lease for 21 years, at the moderate royalty of 1-18th, has been secured, and negotiations have been opened with the proprietor of adjoining lands for an extension of the company's rights. The requisite machinery has also been ordered, and is now in a forward state.
It is now proposed to raise £6000 of the remaining capital to provide the engine and crusher, and to work the mines as recommended by Mr. Francis.
Of this amount, upwards of 1000 shares have been applied for and paid upon.
Persons desirous of taking the remaining shares are requested to pay the amount they require to the credit of the company, with Messrs. Glyn, Mills, and Co., the bankers of the company, on the production of whose receipt the shares will be allotted in the order of priority of application. The bankers are instructed to decline further receipts as soon as 5000 shares have been paid upon.
N.B.—By this arrangement all formal applications for shares, and consequent letters of allotment, will be dispensed with.
Of the 7000 shares remaining unissued, 3000 are liable to be called at par within 12 months, by those directors who have rendered themselves liable for the engine, &c.; the remaining 4000 will be offered to the holders proportionably, in case an extension of work should hereafter be found desirable.
The directors refrain from stating what they believe may be fairly calculated upon as a return for the outlay proposed; but the large quantity of ore at grass, the condition and capability of the mines, as vouched by Mr. Francis, and the fact that they can be efficiently worked at a moderate cost, lead them to entertain no doubt but that a handsome dividend will be realised within three months after the engine and crusher are erected.
A plan of the mine, and specimens of the ore, may be seen at the company's offices.

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